

Evaluations Of High-Impact Weather Prediction

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High impact weather forecasts, more than any other type, deserve to be evaluated thoroughly. Software packages such as the Model Evaluation Tools (MET), Method for Object-based Diagnostic Evaluation (MODE), and the SpatialVx R-package were developed to provide a variety of evaluation methods, covering the range of traditional to spatial techniques. MET and MODE have been used extensively in various NOAA testbeds (i.e. the Developmental Testbed Center, Hazardous Weather Testbed, and Hydrometeorology Testbed) to objectively evaluate severe weather forecasts of various types. Of particular interest are methods to facilitate credible comparisons between models, effective metrics that diagnose characteristics of ensemble member performance, and confidence tests that can estimate the overall impact of verification dataset choices and episode aggregation. MODE has also been used in some less traditional ways, such as forming objects from probabilistic fields and evaluating against the gridded Quantitative Precipitation Estimates. MODE attributes of individual ensemble members have been collected from ensemble attributes for ensemble verification. New verification methods and cases are being implemented and tested in the SpatialVx R-package. A discussion and demonstration of many evaluation methods and outcomes will be presented.